



Technical Capacity Building, Knowledge Transfer, and Skills Development in Earthquake Hazard and Risk Assessment – the Global Earthquake Model GEM

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GEM is a global collaborative effort aimed at the establishment of uniform and open standards for calculating and communicating earthquake risk worldwide. Its mission is to engage a global community in the design, development and deployment of state-of-the-art models and tools for earthquake risk assessment. The models will be consensual, accepted and actually used, because a wide community is involved in designing and developing GEM's software and tools, and in collecting the main data of this thus public-owned and trusted models.

Two main channels through which GEM seeks to achieve these objectives are: (1) development of an interactive, web-based platform for hazard, risk and socio-economic impact assessment (OpenGEM) by bringing together experts from around the world; and (2) close collaboration with local scientists and experts through Regional Programs (RPs), and by providing platforms for exchange and collaboration among RPs and the greater scientific community. In addition GEM is currently running a project to identify the needs of non-expert beneficiaries of its tools and products, and how GEM's products can be most effectively brought to use by these beneficiaries.

The open source philosophy of GEM provides for indiscriminating access to software, tools and products, and facilitates collaborations with agencies and individuals. Recently the first version of the OpenQuake software stack was published (see www.openquake.org). As part of OpenGEM, OpenQuake is an open and transparent software released under a public license for the calculation and assessment of seismic hazard and risk, and will in future also include capacity to assess the related socio-economic impact. In order to support GEM's user community and to facilitate interaction on scientific and IT development, a dedicated User Office will soon be operational.

Activities related to promotion of and collaboration with regional scientists and practitioners are cornerstones of GEM's endeavor to build upon and strengthen the local and regional capacities in seismic hazard and risk assessment. GEM will develop training programs (in electronic form as well as workshops and seminars) for seismic hazard and risk practitioners worldwide in the use of OpenQuake and the OpenGEM platform, while at the same time seeking feedback on data, methods, and standards employed within OpenGEM. By continuous interaction with the community at large and by devoting special attention to areas and regions where risk assessment tools and models are currently less used, the global body of knowledge on earthquake risk and risk assessment will grow. This in turn will contribute to improved GEM tools and models and further support for undertaking of earthquake risk mitigation measures around the world.